S/105/60/000/04/022/024
B007/B008

AUTHORS: Veyts, V. I., Popkov, V. I., Markovich, I. M., Zakharin, A. G., Tolstov, Yu. G., Nikitin, B. I., Karaulov, N. A., Teleshev, B. A., Gurevich, B. A., Lebedev, M. M., et al.

TITLE: On the 70th Birthday of N. N. Krachkovskiy

PERIODICAL: Elektrichestvo, 1960, Nr 4, p 93 (USSR)

TEXT: Nikolay Nikolayevich Krachkovskiy is one of the oldest Soviet power engineers. He started his activities in 1916 after finishing his studies at the elektromekhanicheskoye otdeleniye Petrogradskogo politekhnicheskogo instituta (Department of Electromechanics of the Petrograd Polytechnic Institute). From 1922 he worked at the planning and construction of electric networks in the Volkhovstroy, Dneprostroy, and Sredvolgostroy. He worked as an engineer in a leading position in the eastern regions of the USSR from 1942 to 1944. From 1944 to 1946 he was Director of the sektor sistem Leningradskogo otdeleniya Gidroenergoproyekta (Sector of Networks of the Leningrad Branch of the All-Union Trust for the Design and Planning of Hydroelectric Power Plants and Hydroelectric Developments). His scientific and teaching activity began in 1930 at the Politekhnikum Putey soobshcheniya (Polytechnic Institute of Railroads), at the Leningradskiy politekhnicheskiy institut (Leningrad Polytechnic

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On the 70th Birthday of N. N. Krachkovskiy

S/105/60/000/04/022/024
B007/B008

Institute), and the Akademiya nauk SSSR (Academy of Sciences of the USSR). Since 1950 he was in a leading position at a Planning Institute, directing simultaneously research work at the Energeticheskiy institut AN SSSR (Institute of Power Engineering of the AS USSR). Since 1954 he has devoted himself entirely to scientific work. He graduated as a Candidate in 1948. In 1953 he was approved as a Senior Scientific Collaborator of the Institute of Power Engineering of the AS USSR in the field of "Electric Networks". He published over 50 papers in the periodicals "Elektrichestvo", "Elektricheskiye stantsii", "Izvestiya AN SSSR", et al., and made a number of inventions. There is 1 figure.

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84668

S/020/60/134/006/011/031
B019/B067

9.9419

AUTHORS: Bogdanova, N. B. and Popkov, V. I., Corresponding Member of the AS USSR

TITLE: Some Characteristics of High-frequency Radiation of a Corona Discharge

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 6, pp. 1331 - 1333

TEXT: As is known from experiments there is a certain relationship between the radiation level and the shape of a corona discharge. The present paper deals with the explanation of this relationship for a-c voltage and for radiation levels with both types of polarity, as well as with the possibility of suppressing the radiation level by changing artificially the electric field near the conductor surface and the shape of the corona discharge. The experimental arrangement consisted of a power source (50 cps), a corona conductor, and a copper antenna. The measuring arrangement made it possible to take stroboscopic photographs of the corona and to measure the radiation intensity simultaneously. The existence of a

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homogeneous "cover" of the positive corona at $U/U_o \approx 1.1$ to 1.3, which hitherto has been known only for such thin conductors, was observed also in conductors of large diameters. This cover is so thin that it can be only seen from the contours of the conductor. As is the case with thin conductors, also here the corona current does not fluctuate. In the case of negative polarity, the corona has the shape of local discharges, the current fluctuates, and weak radiation occurs. At $U/U_o \geq 1.3$, the current of the positive corona has a high-frequency component and radiation is considerable. In the case of negative polarity, the radiation intensity changes little with increasing voltage. As may be seen from Fig. 2, the radiation during the positive half-period is considerably stronger than that during the negative half-period. In conclusion, it is noted that radiation of conductors of usual dimensions occurs mainly during the positive voltage half-period and, especially, when the positive corona has the shape of local streamers. By suppressing this type of corona it is possible to prevent radiation. This possibility has been experimentally proved by applying one or two additional conductors near the test conductor, so that their ignition potential was below that of the test

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Some Characteristics of High-frequency Radiation of a Corona Discharge

S/020/60/134/006/011/031
B019/B067

conductor. Thus, a corona discharge took place only at the thin conductors which, as was mentioned at the beginning, have no strong radiation. Further experiments are being carried out. There are 3 figures and 1 Soviet reference.

ASSOCIATION: Energeticheskiy institut im. G. M. Krzhizhanovskogo Akademii nauk SSSR (Institute of Power Engineering imeni G. M. Krzhizhanovskiy of the Academy of Sciences USSR)

SUBMITTED: July 21, 1960

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BOGDANOVA, N.B.; POPKOV, V.I.

Some characteristics of the high-frequency radiation emitted from a corona discharge. Dokl. AN SSSR 134 no.6:1331-1333 O '60.
(MIRA 13:10)

1. Energeticheskiy institut im. G.M.Krzhizhanovskogo Akademii nauk SSSR. 2. Chlen-korrespondent AN SSSR (for Popkov).
(Sun--Corona) (Solar radiation)

POPKOV, V.I., otv. red.; LEVITOV, V.I., kand. tekhn. nauk, red.; LUGOVOY, V.S., kand. tekhn. nauk, red.; APOSTOLATOV, G.A., inzh., red.; ANOKHINA, M.G., tekhn. red.

[Problems of electrical engineering in high mountains; problems of electric power transmission in mountainous areas in the U.S.S.R.]Problemy vysokogornoi elektrotekhniki; voprosy elektroperedachi v gornykh raionakh SSSR. Frunze, Izd-vo Akad. nauk Kirgizskoi SSR, 1961. 309 p. (MIRA 15:9)

1. Akademiya nauk Kirgizskoy SSR, Frunze. Institut energetiki vodnogo khozyaystva. 2. Chlen-korrespondent Akademii nauk SSSR (for Popkov). 3. Energeticheskiy institut im. G.M.Krzhizhanovskogo (for Levitov). 4. Institut energetiki i vodnogo khozyaystva Kirgizskoy SSR (for Lugovoy, Apostolatov).
(Electric lines--Overhead)
(Electric power distribution)

27653
S/024/61/000/004/011/025
E194/E155

C.9419 (1482)

AUTHOR: Popkov, V.I. (Moscow)

TITLE: Problems of suppressing radio interference due to corona discharge

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.4, pp. 64-77

TEXT: Suppression of radio interference (noise) due to corona is of practical importance because this, rather than corona power loss, may restrict power transmission voltage. Hitherto means of suppressing noise due to corona have been such as would also reduce corona power loss, but no other approaches are possible. In tests made some years ago, the use of coatings on the conductor gave disappointing results, but nevertheless it was decided to re-examine this approach. The present tests were made with well-smoothed d.c. voltage of both polarities. The live electrodes were either rods 4 mm in diameter or wires about 3 metres long; the other electrodes were earthed plates. Tests were made with bare electrodes and with various coatings, including insulating varnishes with different amounts of conducting additives such as

Problems of suppressing radio ....

carbon black, and with conducting tapes of rubber or paper. Tests were made both with the conductors dry and wetted by artificial rain. The test equipment was carefully screened against outside interference. The radiation fields (noise levels) were measured by aerials attached to a superhet radio set without automatic volume control. The set output was applied to a voltmeter, and measurements were made at fixed frequencies within the range 153-8800 kc/s. Positive corona may be of two types; either in the form of a uniform luminous sheath round highly stressed parts, or in the form of local streamers. The first form is usually met on thin wires and gives rise to little noise; the second type, which occurs in conductors of large diameter, is accompanied by quite high noise levels. In the present tests both forms were observed, the first near to the initial corona voltage and the second at higher voltages. Corresponding to these, with the particular test conditions used, noise reached a high level a little beyond the initial voltage of 22 kV and remained high up to a voltage of 30-37 kV; at still higher voltages the noise was much less. As the voltage was reduced again the phenomena were

reproduced. In the range 22-27 kV short streamers were observed, whereas at higher voltages the discharge formed a silent stable uniform halo. Similar effects were observed over the whole frequency range of noise measurements. With conductors of negative polarity the corona current and noise level increase more or less steadily as the voltage is raised. In the region of streamer discharge, corona of positive polarity gives much more noise than negative. Conductor coatings might act either as resistance in series with the discharge or by modifying the gamma-effect at the electrode surface. Tests which were made with resistance in series with the supply indicated that the ohmic resistance of the coatings would not be decisive in influencing noise level. The most effective coatings were conductive paper or rubber. With these and other coatings the noise level from a negative conductor was much reduced. With the conductor positive, however, the noise levels were much higher, and coatings did not greatly affect the noise level. Coatings reduce the corona inception voltage and appear to split up positive corona discharges into a number of smaller discharges. With the conductor polarity negative, coatings reduce the noise but may increase the corona

current. Again, with the conductor negative, moisture on bare conductors behaves in much the same way as a protective coating. On rubber-coated conductors, however, moisture increases the noise level although it remains below that of a bare dry conductor. Although the coatings tested gave a measurably useful effect on negative conductors they would, in practice, soon be damaged by ozone, and better materials are required. The general conclusions may be drawn that the noise level is not simply related to the corona current or power loss. Special coatings on a negative conductor may give substantial noise reduction over a wide frequency range. With positive corona, high-frequency noise depends on whether there are streamers (with high noise-level) or uniform glow with low noise-level. The possibility of altering the type of discharge by altering the space charge affords prospects of other methods of controlling corona from positive conductors. This point was studied in more detail in a.c. tests with conductors of 6 and 27 mm diameter at voltages up to 750 kV. Noise measurements were made at a frequency of 220 kc/s. The receiving aerial was contained within a stroboscopic device so that corona noise

measurements could be made at different instants in the a.c. cycle. With long photographic exposure, also using a stroboscopic device, uniform glow was observed with positive corona, whereas previously this had only been observed on thin wires. In the initial stages (lower voltages) noise was mainly due to negative corona. As the voltage was raised to 1.1-1.3 times the corona inception voltage, noise from positive corona became much more pronounced. The results clearly indicated that high noise-levels on the kind of conductors used in practice are generated mainly in the positive half-cycle of voltage, whilst positive discharge is of local streamer form. Therefore, radio interference could be suppressed either by excluding or limiting the origination of the streamer form of positive corona. This was confirmed experimentally using a steel-cored aluminium conductor 27 mm in diameter type ACO -400 (ASO-400). One or two fine wires were located on or near the surface of the main conductor so that their corona inception voltage was below that of the main conductors. The space charge of ions created by corona on the thin wires screens the field of the main conductor and considerably raises the voltage at

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which positive steamer corona occurs. Discharge is localised mainly on the fine wires. Fig.15 plots a graph of the effective reduction of total radio interference during corona on a conductor type ASO-400; curve (a) relates to tests without the fine wire, and curve (6) to the case with two wires 1.5 mm in dia. wound round the main conductor. With the fine wires, interference naturally commences at lower voltages, but at higher voltages the noise level is an order of magnitude less than that from the unscreened conductor. The best screen effect was observed with two wires in parallel. A study was made of the influence of different wire diameters and winding conditions. Of course, the use of screening wires does increase the corona power loss. Fig.17 gives a graph of corona power loss (kW/km) as a function of voltage (kV) for a smooth tube 27 mm in diameter; curve 1 without and curve 2 with screening wires. Although many problems remain to be solved it seems evident that a way can be found greatly to reduce the radio interference, at any rate in those practical cases when it is permissible to increase the corona power loss and to complicate the construction of the conductors in order to reduce the noise level. On e.h.v. transmission lines, coatings might be applied to

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E194/E155

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the negative conductor and screening to the positive.
Acknowledgments are expressed to S.I. Ryabaya and N.B. Bogdanova for their assistance. There are 17 figures and 1 table.

SUBMITTED: March 28, 1961

Card 7/8

POPKOV, V.I.; TOLSTOV, Yu.G.; STEKOL'NIKOV, I.S.; MEYEROVICH, E.A.; MOSKVITIN, A.I.; TAFT, V.A.; GORUSHKIN, V.I.; SOVALOV, S.A.; LIBKIND, M.S.

Sixtieth birthday of I.M. Markovich. Elektrichestvo no.5: 87 My '61. (MIRA 14:9)

(Markovich, Isaak Moiseevich, 1901-)

89301

6,4800
6,9419

Z/017/61/050/004/001/001
E073/E535

AUTHOR: Popkov, V. I., Corresponding Member of the Academy of Sciences, USSR

TITLE: Problems of Suppressing Radio Noise Caused by Corona

PERIODICAL: Elektrotechnický obzor, 1961, Vol.50, No.4, pp.185-191

TEXT: Lecture presented at ČVUT, November 24, 1960.
High frequency oscillations which are formed during corona have a limiting effect on the operating voltage of electrical systems. Extensive measured results are available of the radio noise of experimental or operational networks. In a number of cases these permit evaluating the permissible level of radio noise. The methods of limiting radio noise are the same as for limiting the corona losses, i.e. reducing the intensity of the electric field at the surface of the conductor, which can be achieved in most cases by increasing the real or apparent conductor diameter. However, energy losses and radio noise are not closely connected. The first are determined by the total quantity and the speed of movement of the space charge in the electric field of the conductor, whilst the second are determined by the changes in the movement of this charge. Therefore, experiments relating to selective limitation of radio

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noise are not superfluous even if the resulting measures may lead to increased energy losses. In the U.S.A., experiments were made to reduce the radio noise by depositing various coatings onto the surface of the conductors on which corona occurs. Due to certain drawbacks of these tests, the author decided to carry out the experiments on a wider scale under somewhat differing conditions. The experiments were carried out in 1951 but the results have not hitherto been published. Recently success was achieved with a different approach to the solution of the problem, namely, limiting the radio noise by controlling the electrical field of the conductor with corona by means of the space charge. Some of the obtained results are described in the second part of the work; the first part of the experiments were carried out with the co-operation of S. I. Ryabova and the second with the cooperation of N. B. Bogdanov. In the experiments, smoothened d.c. voltages of both polarities were used, using two types of corona electrodes in the form of points on 4 mm diameter aluminium conductors, the ends of which had a semispherical shape, and cylindrical conductors about 3 m long, both straight and wound. As corona-free elec-trodes, grounded plates were used. In the experiments, tests with

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blank electrodes as well as with electrodes with various coatings were used. As coatings, insulation varnishes with various contents of admixtures of gas soot, conducting rubber strip of 2 mm thickness with a specific resistance of the order of 10^2 to 10^3 Ω cm, which was wound onto the conductor with an overlap, strips of conducting paper 0.2 mm thick with a specific resistance of the order of 10^3 Ωcm and other materials were used. The comparison tests were made not only with dry electrodes but also under artificial rain of a constant intensity. Much attention was paid to the reproducibility of the results and to eliminating disturbing influences. The experiments with point electrodes were made inside a closed metallic space, the walls of which ensured reduction by two orders of magnitude of external disturbances above 200 kc/s. The high voltage was fed in by means of screened high-voltage cables. The noise was measured by aerials 1 m long spaced 1 m from the corona source. The aerial was connected by means of a short coaxial cable to the input of a superheterodyne circuit; the detector output was fed to the terminals of a tube voltmeter. The measurements were by the comparison method at frequencies between 154 and 8800 kc/s. The

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absolute values of the potential in the antenna measured under laboratory conditions are not valuable in themselves; what is valuable is their ratio during various experiments whilst other test conditions remained unchanged. In evaluating the results relating to the influence of the corona polarity, it is stated that the radio noise depends to a great extent on the voltage. The noise generated by positive corona in the form of streamers exceeds by many times the noise level of negative corona for the entire frequency range. Fig.3 shows the frequency characteristics of radio noise on points(Point-plate gap, h = 200 mm, antenna at a distance of 1 m from the point. Bipolar corona point-point gap, h = 400 mm, antenna at a distance of 1 m from the centre of the gap. Curve 1 - noise level measured August 31, 1951, curve 2 - level of external noise, September 12, 1951, curve 3 - level of external noise April 26, 1951). The noise level in μV is plotted as a function of the frequency kc/s (hrot - point; anténa - antenna; bipolární korona - bipolar corona). Coatings may affect the corona either due to their influencing gamma processes on the electrode surface or due to their electric resistance. A

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reduction of the noise level could only be observed for resistances of the order of 10^3 to 10^4 Ohms; it was particularly pronounced at high frequencies and was practically the same for both polarities. Of the coatings, conducting paper and rubber proved to be the most satisfactory and their effect is greater for negative corona. Fig.7 shows the influence of coatings on radio noise and the positive corona current on a stranded conductor. Conductor - plate, h = 260 mm, rope of 6.5 mm diameter, antenna at a distance of 1 m from the conductor, frequency 154 kc/s, noise level μV and corona current, μA vs. voltage, kV (curve 1 - noise, a conductor with paper coating; curve 2 - noise, blank conductor; curve 3 - current intensity, conductor with paper coating; curve 4 - current intensity, blank conductor; curve 5 - external noise level). From the results the author concludes that for d.c. corona the level of noise is not unequivocally related to the current intensity or to the corona losses. In principle, the high noise levels of negative corona can be reduced by means of special coatings but this does not apply to positive corona. The high frequency noise of positive corona depends on the type of discharge. Streamer corona with a high noise level can be transformed into homogeneous

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corona without noise by introducing a sufficiently strong space charge and this provides an effective possibility for reducing corona noise. Experiments relating to a.c. corona were carried out on polished, smooth aluminium tubes 6 and 27 mm diameter and also on a polished conductor rope of 27 mm external diameter; these were fitted into the axis of a grounded cylinder of 2 m diameter. The cylindrical section, of a length of 1 m, was screened at both ends with screens 1 m long. The high voltage was fed to the corona conductor from a 750 kV transformer through a cylindrical tube of 30 cm diameter and measures were taken to eliminate foci of disturbing discharges. Since the corona conductor was enclosed in a metal cylinder, a 12 m long antenna, consisting of a 61 mm diameter copper tube placed at a height of 2.7 m from the laboratory floor, was used for measuring the noise. The ionization threshold of the antenna was higher than the maximum level of the operating voltage. The corona was photographed during various parts of the 50 c.p.s. cycle by means of a stroboscopic disc and holes in the cylinder wall. The corona intensity was recorded by means of a photomultiplier and a CRT oscillograph. All the measurements were

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carried out at the frequency of 220 kc/s. The noise level in the positive half-cycle was considerably higher than in the negative half-cycle. This applied particularly when streamers formed. In experiments with steel-aluminium conductor, 27 mm diameter, it was found that the corona could be influenced most by two parallel screening wires. Optimum relations were determined on the diameter of the screening wire and also the pitch of the screening wire spiral. The screening wires reduce the initial corona voltage but they do increase the energy losses. Fig.14 shows the influence of two 1.5 mm wires wound on a conductor ASO-400 on the noise level, noise level μV vs. U, kV (-o- conductor, blank; -x- same conductor with two 1.5 mm diameter wires wound around it). Numerous further studies will still be required for elucidating the physical processes concerning corona. There are 16 figures and 1 table.

ASSOCIATION: Power Research Institute G. M. Krzhizhanovskiy AS USSR

SUBMITTED: December 20, 1960

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Z/017/61/050/004/001/001
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FIG. 3

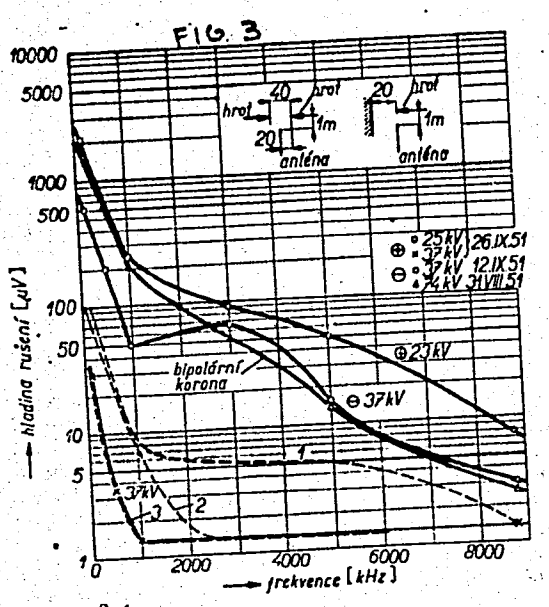

Fig.7

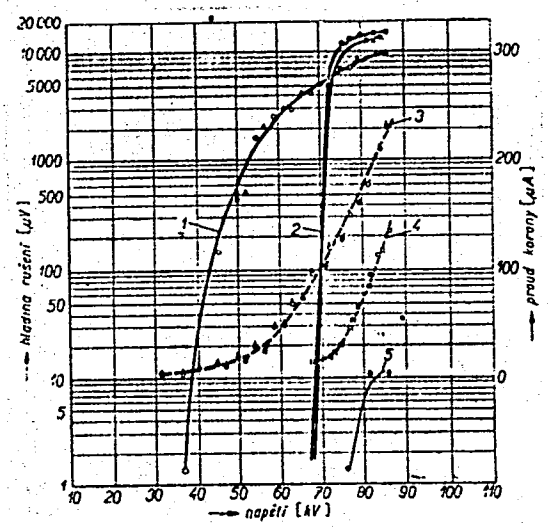

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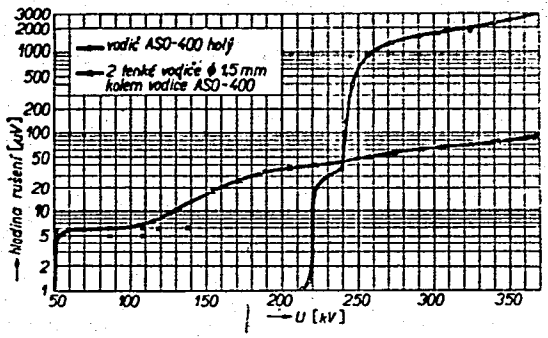
Fig.14



Obr. 14. Snížení rádiového rušení na vodiči ASO-400 umístěním tenkých vodičů k hlavnímu vodiči.

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POPKOV, V.I.; ZAKHARIN, A.G.; MARKOVICH, I.M.; TOLSTOV, Yu.G.; GUREVICH, B.A.; KRACHKOVSKIY, N.N.; LEBEDEV, M.M.; MIKHAYLOV, V.I.; DENISOV, V.I.; MOSKVITIN, A.I.; MEYEROVICH, E.A.; TELESHEV, B.A.; STEKOL'NIKOV, I.S.; LAPITSKIY, V.I.; KHLYSTER, I.M.

Veniamin Isaakovich Veits; obituary. Elektrichestvo no.4: 91-92 Ap '61. (MIRA 14:6)
(Veits, Veniamin Isaakovich, 1905-1961)

POPKOV, Valeriy Ivanovich; FEDCHENKO, V., red.; YEGOROVA, I., tekhn. red.

[EES; story of the consolidated electric power system of the U.S.S.R.] EES; rasskaz o edinoi energeticheskoi sisteme SSSR. Moskva, Izd-vo TsK VLKSM "Molodaia gvardiia," 1961. 110 p. (MIRA 14:12)

(Interconnected electric utility systems)

S/094/62/000/002/001/002
E194/E485

AUTHORS: Popkov, V.I., Grigor'yev, V.V., But, A.I.

TITLE: Electronic-ionic technology in the national economy

PERIODICAL: Promyshlennaya energetika, no.2, 1962, 1-4

TEXT: This is a general article intended to familiarize production engineers and others with recent achievements in electronic-ionic technology. It is based on materials of the Scientific-Technical Commission of the former GNTK USSR of which V.I.Popkov was President. Electronic-ionic technology has three special features: firstly a wide range of materials can be treated in an electric field so that it is a very universal method; secondly, the process is continuous and subject to very fine control; and thirdly the electrical energy is directly applied to the object without intermediate conversion. The introduction of electronic-ionic technology can be revolutionary in many branches of industry. Thus, the use of electrical mixing and electrical forming in the manufacture of constructional materials could save hundreds of millions of roubles per year. The introduction of electrical flotation can provide an economic solution to problems of producing rare and dispersed elements such as rubidium, caesium,

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Electronic-ionic technology ...

germanium, etc. Electronic-ionic processes are already partially being used for de-watering and de-salting crude oil, for trapping powdered products such as cement, for purifying industrial flue gases, for painting and for many other purposes. At the Gorkov'skiy avtozavod (Gor'kiy Automobile Works) the use of high-tension painting methods saves 300000 roubles per year and still greater economies have been achieved at other works. On delivery on a conveyor into the painting room, the product is charged whilst the paint spray is charged to the opposite sign. The method gives a better coat of paint with smaller paint consumption and is very convenient for automatic operation, each installation saves about 40000 roubles per year. The Katuarovskiy keramichevskiy zavod (Katuarov Ceramic Works) is depositing powdered glaze on unfired tiles in an electrostatic field thus not only saving glaze but cutting out the preliminary firing of the tiles. Electrostatic methods are being used to produce textile materials with a pile such as artificial furs, carpets and others. Using electrical methods more than 1000 fibres can be placed vertically on one square millimetre of surface. An electrical spinning method is in the process of development, the idea being that the electrical

Electronic-ionic technology ...

field would straighten and orientate the fibres and deliver them in the required direction. Electrical separation and electrical classification of materials is very promising. Polar particles can be separated from non-polar by attraction of the polar particles into the parts of the electrical field where the gradient is greatest. Electrical separation methods are widely used to concentrate coal and ores of rare elements, to regenerate mould materials in foundries and to produce high grade constructional materials. Electrical forming offers promise in the building industry. Pulverized materials can be deposited electrically on a shaped electrode or products of complicated shape can be formed, such as pipes, insulators, insulating and building materials. Electrical mixing of various components may be combined with the grading of the materials according to particle size and the like. Electrical fields may be used in printing to press the paper to the matrix, a latent image may be formed electrically on the paper which then attracts the ink. Although electronic-ionic methods are very promising they have not found really wide application and one of the main reasons for this is the

S/024/62/000/002/001/012
E194/E135

AUTHORS: Levitov, V.I., Lyapin, A.G., Popkov, V.I., and Ch'ing Chiang-Yang (Moscow)

TITLE: An oscillographic procedure for d.c. corona field investigation

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Energetika i avtomatika, no.2, 1962, 47-54

TEXT: As the probe method of investigating a d.c. corona field is laborious an oscillographic procedure was devised to record the probe characteristic automatically. The probe V-A characteristic may be used to determine the field potential and the product $k\rho$ of the ion mobility and space charge density. With the new method this product, $k\rho$, can be found without accurate knowledge of the probe capacitance, and the probe capacitance itself can be determined. The voltage applied to the probe consists of a d.c. component approximately the same as the field potential and an a.c. component of appropriate

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An oscillographic procedure for ...

amplitude and frequency. To make the ionic component of probe current large as compared with the capacitative current the frequency of the a.c. component of the probe voltage must be low. If this condition is observed the probe V-A characteristic can be recorded on a single oscillogram and the product $k\rho$ can be found from a phase angle measurement. If a higher a.c. frequency is used the probe current is predominantly capacitative and the probe capacitance can be found. The necessary experimental equipment is described including a rectifier source of d.c. supply, a saw-tooth waveform generator developing a voltage of some tens of kV and a special changeover switch. Tests were made in a cylinder 1.92 m diameter on polished wires of 3.09 and 1.47 mm diameter with both positive and negative corona. The probe V-A characteristics are compared with calculated values and with experimental values obtained by the usual procedure, and agreement is good. The field potential distribution results are also in good agreement, the difference between calculated and experimental values being not greater than 6%. Probe capacitance measurements were made using a

50 c/s a.c. component. The capacitance was found to be lower when corona was present than when it was absent; the difference can be as much as 25% when the probe is near to the wire (6 cm). Accordingly, the usual calculation of probe capacitance can be seriously in error when the probe is near the wire with corona, so that the capacitance should always be determined experimentally.
There are 9 figures.

SUBMITTED: June 14, 1961

Card 3/3

GORUSHKIN, V.I.; KOVAL'KOV, G.A.; KOZLOVSKIY, G.F.; LUTIDZE, Sh.I.; MARKOVICH, I.M.; MEYEROVICH, M.A.; MIKHNEVICH, G.I.; POPKOV, V.I.; STEKOL'NIKOV, I.S.; TAFT, V.A.; TOLSTOV, Yu.G.

Sixtieth anniversary of the birth of A.I. Moskvitin. Elektrichestvo no.4:94 Ap '62. (MIRA 15:5)
(Moskvitin, Anatolii Ivanovich, 1902-)

POPKOV, V. I.

"Some Special Features of Corona on High Voltage D. C. Transmission Lines"
To be submitted at the International Conference on Gas Discharges
and the Electricity Supply Industry, 7-11 May 1962, Leatherhead, UK.

Academy of Sciences of the USSR.

POPKOV, V.I., KRAVCHENKO, V.D., LEVITOV, V.I.,

"Corona power losses on the 400,000 V lines in operation."

Report to be submitted for the 19th Biennial Session, Intl. Conf. on Large Electric Systems(CIGRE), Paris, France, 16-26 May '62.

KRAVCHENKO, Power Engineering Inst. im G.M. Krzhizhanovskiy.
Levitov, " " " " " "

KOSTENKO, M.V.; NEYMAN, L.R.; VENIKOV, V.A.; POPKOV, V.I.; MEL'NIKOV, N.A.; VOROB'YEV, A.A.; KUTYAVIN, I.D.; LYSHCHINSKIY, G.P.

V.K. Shcherbakov; on his 60th birthday and 35th anniversary of his educational work. Elektrichestvo no.8:93-94 Ag '63. (MIRA 16:10)

ARTSIMOVICH, L.A., akademik; DOLLEZHAL', N.A., akademik; KIRILLIN, V.A., akad.; MILLIONSHCHIKOV, M.D., akademik; POPKOV, V.I.; FRUMKIN, A.N., akademik

[Power engineering of the future; the second discussion] Energetika budushchego; beseda vtoraia. [By] L.A. Artsimovich i dr. Moskva, Izd-vo "Znanie," 1964. 54 p. (Novoe v zhizni, nauke, tekhnike. Seriia IX: Fizika, matematika, astronomiia, no.11) (MIRA 17:6)

1. Chlen-korrespondent AN SSSR (for Popkov).

BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN, Ya.Z., doktor tekhn.nauk,prof.,red.; VORONOV,A.A., doktor tekhn.nauk,prof.,red.; SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,D.I., doktor tekhn. nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk, prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; PROKOF'YEV, V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk, prof.,red.; KITOV,A.I.,doktor tekhn.nauk,red.; KRINITSKIY, N.A., kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.; USHAKOV,V.B., doktor tekhn.nauk,red.; LERNER,Yu.A., doktor tekhn. nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.; SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KHARKEVICH,A.A., akad., red.;TIMOFEYEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN, G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL, A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I., red.; ROZENBERG, L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3. Pogreshnost' resheniia - Teleizmeritel'naia sistema chastotnaia. 1964. 487 p. (MIRA 17:10)

1. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev, Popkov).

ACCESSION NR: AP4017134 S/0239/64/050/002/0236/0240

AUTHOR: Balakovski, I. S. (Balakhovskiy, I. S., Moscow); Dolgo-Saburov, V. B. (Moscow); Popkov, V. I. (Moscow); Tcherniakov, I. N. (Chernyakov, I. N., Moscow)

TITLE: Use of a flow oxyhemometer under acute experimental conditions

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 50, no. 2, 1964, 236-240

TOPIC TAGS: oxyhemometer, flow oxyhemometer PO-1, blood oxygenation change, rarified atmosphere, hemoglobin spectral property, hemoglobin reflected light, excessive oxygen pressure, external body counterpressure

ABSTRACT: The oxyhemometric method based on determination of hemoglobin spectral properties enables an experimenter to investigate the dynamics of blood oxygenation at a distance. This is especially important in rarified atmosphere tests with a pressure chamber. Flow oxyhemometer PO-1 measures oxygen saturation of the blood as it passes through a glass cuvette by the amount of light the hemoglobin reflects rather than by the amount of light passing through as in

Card 1/2

ACCESSION NR: AP4041640 S/0281/64/000/003/0328/0340

AUTHOR: Levitov, V. I. (Moscow); Popkov, V. I. (Moscow)

TITLE: Corona investigation during high-voltage power transmission

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 3, 1964, 328-340

TOPIC TAGS: power transmission, high voltage transmission, electric power transmission, corona, coronal discharge, night loss

ABSTRACT: The authors consider the importance of coronal discharge investigations in connection with the development of high-voltage power lines. Requirements of the complex and costly experimental stations presently necessary, due to the transition to lines of different voltage classes, are reviewed, and the use of electronic computers for the memorization and classification of the copious test information, as well as for its collation with meteorological data, is mentioned. Existing installations are cited and brief information regarding their specifications and performance is given. Recent Soviet developments in the field are outlined, and the method and instrumentation developed at the Laboratoriya vy*sokikh napryazheniy Energeticheskogo instituta im. G. M. Krzhizhanovskogo (High Voltage Laboratory of the G. M. Krzhizhanovskiy Institute for Energetics) are described.

Card 1/3

ACCESSION NR: AP4041640

The authors analyze the data obtained on corona losses of energy and power using this equipment and methodology during year-round studies on two existing 500-kv lines, one of which has maximum working potential gradients. The detailed results of these investigations, it is noted, have been published elsewhere. (Kravchenko V. D., Levitor, V. I., Popkov V. I. Poteri moshchnosti i energii na koronu na provodakh deystvuyushchey linii 500 kv. Elektrichestvo, 1964, No. 5). In the present article, only certain data are given in order to illustrate to some degree the volume and character of the information derived and to facilitate a discussion of problems relating to the statistical nature of the corona losses and their distribution (in time, for various weather conditions, etc.). As the fundamental weather type, the authors have chosen rain as the type for which the technique of corona loss computation has been most perfected. They demonstrate the considerable importance of corona losses arising in the case of elevated atmospheric humitity (so-called "night"losses). Statistical data are provided with respect to monthly and diurnal loss distribution, along with integral distribution curves for relative losses. In the opinion of the authors, the existence of an approximate similarity in the laws governing distribution for different weather types provides a basis for attacking the problem of improving existing techniques for planned corona ratings on lines to be built. Finally, on the basis of experimental information, an estimate is made of the possible mean-annual energy loss level for the 750-kv Konakovo-Moscow experimental industrial line.

Card 2/3

Card 3/3

KRAVCHENKO, V.D., inzh.; LEVITOV, V.I., kand. tekhn. nauk; POPKOV, V.I.

Corona power and energy losses in a 500 kv. line. Elektrichestvo no.5:7-12 My '64. (MIRA 17:6)

1. Energeticheskiy institut imeni Krzhizhanovskogo. 2. Chlen-korrespondent AN SSSR (for Popkov).

AKOPYAN, A. A.; ALEKSANDROV, YEMELYANOV, N. P.; LEVITOV; MIROLYUBOV, NAYASHKOV, I. S.; PANOV, A. V.; POPKOV, V. I.; ROKOTYAN, S. S.; SOKOLOV, N. N.; TIKHODEYEV, N. N.

"The 750 kV Experimental Commercial Transmission Line Konakovo-Moscow."

report submitted for 20th Biennial Sess, Intl Conf on Large Electric Systems, Paris, 1-10 Jun 64.

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; VORONOV A.A., prof., red.; AGEYKIN, D.I., doktor tekhn.nauk red.; GAVRILOV, M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.; SOTSKOV, B.S., red.; CHELYUSTKIN, A.B., doktor tekhn. nauk, red.; PROKOF'YEV, V.N., doktor tekhn. nauk, prof., red.; IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I., doktor tekhn. nauk, red.; KRINITSKIY, N.A., kand. fiz. mat. nauk, red.; KOGAN, B.Ya., doktor tekhn. nauk, red.; USHAKOV, V.B., doktor tekhn. nauk, red.; LERNER, A.Ya., doktor tekhn. nauk, prof., red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof., red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, red.; KHARKEVICH, A.A., akademik, red. [deceased]; TIMOFEYEV, P.V., red.; MASLOV, A.A., dots., red.; TRUTKO, A.F., inzh., red.; LEVIN, G.A., prof., red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.; NETUSHIL, A.V., doktor tekhn. nauk, prof., red.; POPKOV, V.I., red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.; LIFSHITS, A.L., kand. tekhn. nauk, red.; AVEN, O.I., kand. tekhn. nauk, red.; BLANN, O.M. [Blunn, O.M.], red.; BROYDA, V., inzh., prof., red.; BREKKL', L [Brockl, L.] inzh., knad. nauk, red.; VAYKHARDT, Kh. [Weichardt, H.], inzh., red.; BOCHAROVA, M.D., kand. tekhn. nauk, st. nauchn. red.

[Automation of production processes and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia entsiklopediia. Vol.4. 1965. 543 p. (MIRA 18:6)

L 11548-66 EWT(d)/EWP(k)/EWP(1) JT

ACC NR: AP6005028 SOURCE CODE: UR/0105/65/000/001/0091/0091

AUTHOR: Ayvaz'yan, V. G.; Aleksandrov, B. K.; Andrianov, V. N.; Beschinskiy, A. A.; Budzko, I. A.; Zhimerin, D. G.; Krasnov, V. S.; Kruzhilin, G. N.; Kulebakin, V. S.; Listov, P. N.; Markvardt, K. G.; Markovich, I. M.; Popkov, V. I.; Styrikovich, M. A.

ORG: none

TITLE: Professor Andrey Georgiyevich Zakharin

SOURCE: Elektrichestvo, no. 1, 1965, 91

TOPIC TAGS: electric power engineering, electric engineering personnel

ABSTRACT: A short biography of subject on the occasion of his 60th birthday in November 64. A close disciple of Krzhizhanovskiy, he now heads sector of general methodological problems and forecasting at ENIN (Institute of Power Engineering imeni Krzhizhanovskiy), and power engineering section within its scientific council. In 1927-1932, worked in designing and construction of power stations and industrial power installations in the Trans-Caucasus. In 1932, having graduated as electrical engineer from Tbilisi Polytechnical Institute, he switched to scientific work at All-Union Institute of Farm Electrification, and at ENIN since 1944. Became candidate of technical sciences in 1937; doctor, in 1948. Subject is credited with working out the methods for designing efficient and economical regional and local power systems, utilizing local power resources and coordinating them with the power grids. He participated in studies on electrification through 1980, and on

Card 1/2 UDC: 621.31:(0,75.5)

L 11548-66

ACC NR: AP6005028

2

the application of mathematical methods to solution of problems concerning fuel-power balance. In recent years, he has been concerned with linear programming, and long-term prediction with computer techniques. He authored about 80 scientific works, including monographs, textbooks and handbooks, and has been editing all ENIM publications. Is active in CEMA commissions and GOSPLAN USSR, devoting special attention to coordination of scientific research in power engineering. Has been awarded the Order of the Badge of Merit and other decorations. Orig. art. has: 1 figure.
[JPRS]

14

SUB CODE: 09 / SUBM DATE: none

HW

Card 2/2

L 24077-66 EWI(l)/EWP(m)/EWT(m)/EWA(d)/T/EWA(h)/EWA(l) JKT/WW/JW/JWD/WE/JT 18C

ACC NR: AP6011966 SOURCE CODE: UR/0281/65/000/002/0158/0159

AUTHOR: Alad'yev, I. T.; Aleksandrov, B. K.; Baun, V. A.; Golovina, Ye. S.; Gol'denberg, S. A.; Zhimerin, D. G.; Zakharin, A. G.; Ivavlev, V. N.; Knorre, V. G.; Kozlov, G. I.; Loont'yeva, Z. I.; Markovich, I. M.; Moyerovich, E. A.; Nikhnovich, G.V.; Popkov, V. I.; Popov, V. A.; Prodvoditolev, A. S.; Pyatnitskiy, L. N.; Styrikovich, M. A.; Tolstoy, Yu. G.; Tsukhanova, O. A.; Chukhanov, Z. F.; Sheyndlin, A. Ye. 125 120 B

ORG: none

TITLE: Lev Nikolayevich Khitrin

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 2, 1965, 158-159

TOPIC TAGS: academic personnel, physics personnel, combustion, carbon, high temperature research, plasma beam, fuel

ABSTRACT: Professor L. N. Khitrin, Corresponding Member, Academy of Sciences USSR, State Price Laureate, and Doctor of Engineering Sciences, died after a short but severe illness at the age of 58. He was well known here and abroad as an outstanding scientist and specialist in the field of combustion theory and the development of methods for speeding up burning of fuel. He began his scientific work at the All Union Heat Engineering Institute after graduating from the physics department of Moscow University in 1930. His early work was on the propagation of flames in gases, and on heterogenous combustion. In 1948 he defended his Doctor's Dissertation on the theory of combustion of car-

Card 1/2 UDC: 621.036:92

L 24077-66

ACC NR: AP6014966

bon. His monograph "Combustion of Carbon" was awarded the State Prize in 1950. In 1951 he became the permanent director of the laboratory for the intensification of combustion processes of the G. M. Krzhizhanovskiy Power Institute. He was elected a corresponding member of the Academy of Sciences USSR in 1953. He headed the All Union Advisory Board on combustion, represented Soviet science at International Symposia, and was a member of the International Institute of combustion. For a number of years, he directed the Moscow general seminar on combustion, and took an active part in the work of the Scientific Council of the Academy of Sciences USSR, on high temperature heat physics, and of the scientific council on the comprehensive utilization of fuel. He devoted a large amount of attention to teaching work. He directed the Combustion Division of the Physics Department of Moscow State University. His monograph "Physics of Combustion and Explosion" (1957) is a basic text for students in this field. Three Doctor's Dissertations and fifteen Candidate Dissertations were defended under his direction. In the last years of his life he directed work on methods for comprehensive utilization of fuel at power stations so as to obtain valuable products from the mineral part of the fuel, as well as work on the physical chemical processes in a plasma stream, and the mechanism of interaction between carbon and gases. He was the author of more than 60 scientific works, for which he was awarded the Order of the Red Banner of Labor and medals. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 21, 20 / SUBM DATE: none

Card 2/2

L 5050-66 EWT(1)/EPA(s)-2/EPF(w)-2/EWA(m)-2

ACC NR: AP5021895 UR/0281/65/000/004/0069/0085

621.3.015.532

44,55

AUTHOR: Popkov, V. I. (Moscow)

54

B

TITLE: Peculiarities of corona discharge at high field strengths

21,44,55

SOURCE: AN SSSR. Izvestiya. Energetika i transport, no. 4, 1965, 69-85

TOPIC TAGS: electric corona, corona discharge, electric field, compressible gas, gas discharge

ABSTRACT: In connection with earlier observation of numerous anomalies in the changes of the breakdown strength of compressed gases, of departures from the Paschen law, and influences of the electrode materials on the breakdown voltages, numerous authors advanced the belief that these may be caused by effects related to the cold emission. Numerous subsequent works convinced F. L. Jones and C. G. Morgan (Proc. Roy. Soc., 1953, pt. A, v. 216) that the cold emission may play the basic role as a secondary process in the Townsend mechanism of the static gas breakdown. The present paper presents the results of systematic measurements of initial and critical strength of corona fields of both polarities. Measurements were carried out with thin wires and various strengths up to E_{in} = 1000 - 1300 kv/cm. These are then evaluated from the standpoint of their correspondence to the conditions of discharge similarity. The difference of initial voltages for positive and negative polarities (for E ≥ 100 - 200 kg/cm) depends on E but does not depend on the reduced E/p value (p - pressure). It is caused by the influence of elementary processes in the negative corona which do not agree

Card 1/2

Card 2/2 ML

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L 5050-66

ACC NR: AP5021895

with the discharge similarity conditions but are characterized by an increase in γ^- by a factor of 10 to 100 as compared with γ^+ {(E/p) is the generalized coefficient of secondary ionization}. All results confirm the hypothesis concerning the influence of the cold emission factor in the negative corona for E ≥ 100 to 200 kv/cm. Orig. art. has: 22 formulas, 10 figures, and 3 tables.

ASSOCIATION: None

SUBMITTED: 18May65 ENCL: 00 SUB CODE: EM, ME

NO REF SOV: 005 OTHER: 015

Card 2/2

POPKOV, V.I. (Moskva)

Improvement of the methods of production on continuous lines.
Shvein. prom. no. 6:20-23 N-D '65. (MIRA 18:12)

POPKOV, V.I.

Industrial applications of strong electric fields. Vest. AN SSSR 34 no.1:18-24 Ja '65. (MIRA 18:2)

1. Chlen-korrespondent AN SSSR.

GEYCV, V. I.

Dissertation defended at the Institute of Physiology imeni I. P. Pavlov for the academic degree of Candidate of Medical Sciences: 1962

"Bile Secretion Following Total X-ray Irradiation in Dogs with Disordered Functional Condition of the Higher Sections of the Central Nervous System."

Vestnik Akad Nauk, No. 4, 1963, pp. 119-145

ACCESSION NR: AT4042690 S/0000/63/000/000/0259/0261

AUTHOR: Kovalenko, Ye. A.; Popkov, V. L.; Chernyakov, I. N.

TITLE: Effect of breathing oxygen during excess g-loads on the oxygenation of the brain

SOURCE: Konferentsiya po aviatsionnoy i kosmicheskoy meditsine, 1963. Aviatsionnaya i kosmicheskaya meditsina (Aviation and space medicine); materialy* konferentsii. Moscow, 1963, 259-261

TOPIC TAGS: acceleration stress, oxygen atmosphere, oxygen tension, brain tissue, dog

ABSTRACT: Experiments were performed for the purpose of studying oxygen tension dynamics in brain tissues during acceleration stress while breathing air and oxygen. Experiments were performed on dogs with electrodes permanently implanted into their brain tissues. Oxygen tension was determined by polarographic method and expressed in relative magnitudes. At the

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ACCESSION NR: AT4042690

same time, EKG, EEG, and pneumograms were recorded. Animals were subjected to accelerations of 2--12 g for periods of 1--3 min. Longitudinal as well as transverse accelerations were employed. The experiments performed indicate that during prolonged action of acceleration, the oxygenation of the tissues of the brain is always reduced, particularly during longitudinal accelerations in the head-pelvis position. This makes it possible to assume that in pathogenic changes induced by accelerations, hypoxia of the brain plays a significant role. This is confirmed by the fact that during action of acceleration up to 10 g, breathing oxygen tends to maintain the oxygen tension in brain tissues on a nearly normal level, significantly increasing tolerance to acceleration stress. At the same time, the relatively serious changes in the organism caused by acceleration stress, even when oxygen tension in brain tissues is maintained by breathing pure oxygen, indicate the presence of other factors in the pathogenic picture induced by acceleration stress.

ASSOCIATION: none

Card 2/3

KOVALENKO, Ye.A.; POPKOV, V.L.; CHERNYAKOV, I.N. (Moskva)

Cerebral hypoxia during overloading under conditions of oxygen breathing. Pat. fiziol. eksp. ter. 7 no.5:9-15 S-O'63
(MIRA 17:2)

KOVALENKO, Ye.A. (Moskva); POPKOV, V.L. (Moskva); CHERNYAKOV, I.N. (Moskva).

Cerebral hypoxia caused by gravitational overstress in the cephalopelvic direction. Fiziol. zh. SSSR Sechenov 49 no.6: 719-724 '63 (MIRA 17:1)

KOVALENKO, Ye.A.; POPKOV, V.L.; CHERNYAKOV, I.N.

Intravital study of oxygen tension in brain tissues during prolonged accelerations. Biul.eksp.biol. i med. 55 no.1: 43-48 Ja'63. (MIRA 16:7)

1. Predstavlena deystvitel'nym chlenom AMN SSSR V.V.Parinym.
(ANOXEMIA) (BRAIN)
(ACCELERATION--PHYSIOLOGICAL EFFECT).

KOVALENKO, Ye.A.; POPKOV, V.L.; CHERNYAKOV, I.N. (Moskva)

Effect of increased carbon dioxide concentration on hypoxia of cerebral tissues. Pat. fiziol. i eksp. terap. no.2:50-54 '64. (MIRA 17:9)

ACCESSION NR: AP4037624 S/0216/64/000/003/0376/0387

AUTHOR: Kovalenko, Ye. A.; Popkov, V. L.; Chernyakov, I. N.

TITLE: Application of polarography for determining oxygen tension in brain tissues under the influence of factors of high altitude flight

SOURCE: AN SSSR. Izv. Seriya biologicheskaya, no. 3, 1964, 376-387

TOPIC TAGS: polarography, oxygen tension, brain oxygen tension, cortex oxygen tension, dog brain oxygen tension, brain polarography, hypoxia, height induced hypoxia, carbon dioxide breathing, oxygen breathing, rapid ascent hypoxia, lung pressure, lung counter pressure, overload induced hypoxia

ABSTRACT: The basic works on polarography are listed. For this study the mercury drop electrode was replaced by a solid platinum one. The method consists basically in placing 2 electrodes in the tissues of the living organism and applying a 0.6-0.8 voltage. At the cathode a reduction of the available oxygen with initial formation of hydrogenperoxide and its subsequent reduction to water will occur, and this creates a current in the circuit proportional to oxygen concentration in the solution. The theory of the solid platinum electrode has not been completely

Card 1/3

ACCESSION NR: AP4037624

developed as yet. It offers the advantage of measurements in localized parts of the living organism to be used for studying hypoxia states under certain flight conditions. The tests were conducted in dogs; the set-up is figured and the material described. The results of tests for O_2 tension are figured for certain brain tissues upon breathing gas mixtures with a varying O_2 content and upon keeping the dogs in pressure chambers for 2 minutes to simulate various height conditions with and without additional oxygen. The effects of acceleration were also studied and the results are given in % of O_2 tension (pO_2). Upon breathing air these values were rather constant. The correct working of this set-up showed the pO_2 to be proportional to the %content of oxygen in the breathed air. In the first series of experiments on gas mixtures, addition of CO_2 was found to increase pO_2 in the brain under normal conditions and in hypoxia. Rapid ascent to an altitude of 12,000 m without oxygen reduced pO_2 to 1/2 the initial level, with accompanying side effects of hypoxia; and with oxygen to 2/3 that level without side effects. The difference in breathing amplitude under these conditions is briefly touched upon. Almost the same observations were made at 3.6 and 4 km heights. In rapid ascent to 15, 17 and 20 km (simulating leaking of the space cabin) the speed of air rarefication determined brain deoxygenation and the reserve time (30-50 sec.) after which respiratory arrest set in. Upon repeating the tests, a certain adaptation

Card 2/3

SUB CODE: LS NO REF SOV: 024 OTHER: 017

Card 3/3

L 27910-65

ACCESSION NR: AP5000266 S/0239/64/050/012/1496/1499

AUTHOR: Kochetov, A. K. (Moscow); Popkov, V. L. (Moscow); Chernyakov, I. N. (Moscow)

TITLE: Respiration control apparatus for intact animals

SOURCE: Fiziologicheskiy zhurnal SSSR, v. 50, no. 12, 1964, 1496-1499

TOPIC TAGS: dog, apparatus, artificial respiration, hypercapnia, respiration, electrocardiography, lysthenon, medical equipment

ABSTRACT: A respiration control apparatus developed by the authors is described. The apparatus consists of a mask in the form of a helmet placed over the animal's face, a "respiratory" chamber fitted over the animal's body, and a system which produces pressure alternately under the mask and then in the chamber (see enclosure). In two series of experiments on dogs, the apparatus has been used successfully to maintain artificial respiration for a 30 min period with the respiratory musculature completely inactivated and also to produce experimental hypercapnia. Orig. art. has: 4 figures.

Card 1/3

D

L 27910-65
ACCESSION NR: AP5000266

ASSOCIATION: None

SUBMITTED: 08Aug63 ENCL: 01 SUB CODE: LS

NR REF SOV: 006 OTHER: 002

Card 2/3

L 27910-65
ACCESSION NR: AP5000266

ENCLOSURE 01

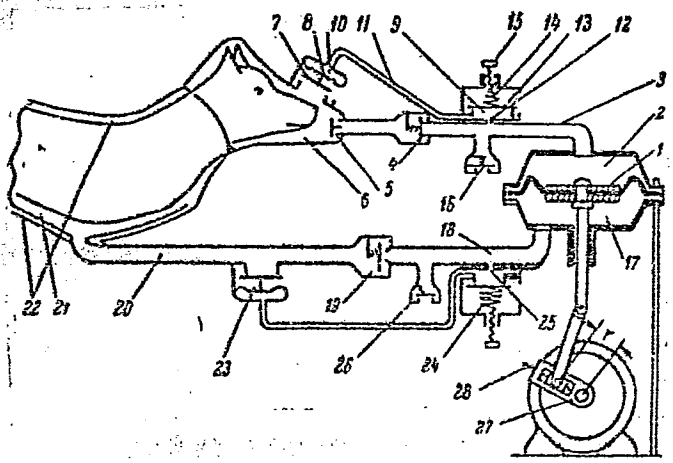

Fig. 1. Diagram of respiration control apparatus for intact animals. 1 - membrane 2 - cavity; 3 - hose; 4 - valve; 5 - valve; 6 - mask; 7 - outlet valve; 8 - membrane; 9 - chamber; 10 - space over membrane; 11 - pipe; 12 - nozzle; 13 - valve; 14 - spring; 15 - spring tension adjustment screw; 16 - valve; 17 - cavity; 18 - hose; 19 - valve; 20 - hose; 21 - "respiratory" chamber; 22 - rigid covering; 23 - valve; 24 - chamber pressure regulator; 25 - not given; 26 - valve; 27 - crank; 28 - screw.

Card 2/2

CHERNYAKOV, I.N., mayor meditsinskoy sluzhby; POPKOV, V.L., mayor meditsinskoy sluzhby

High-altitude equipment and medical supplies for flights of Lockheed U-2 airplanes. Voen.-med.zhur. no.11:87-88 '64. (MIRA 18:5)

IVANOV, D.I.; MALKIN, V.B.; IOPKOV, V.L.; POPOVA, Ye.O.; CHERNYAKOV, I.N.

Automatic analysis of diurnal periodic changes in the human electroencephalogram. Probl. kosm. biol. 4:642-644 '65. (MIRA 18:9)

POPKOV, V.L.; CHERNYAKOV, I.N., (Moskva)

O_2 and CO_2 tension in the blood in dogs during breathing under excessive pressure at high altitudes. Biul. eksp. biol. i med. 60 no. 10:20-23 O '65 (MIRA 19:1)

1. Submitted June 4, 1964.

L 14259-66 RD
ACC NR: AT6003902 SOURCE CODE: UR/2865/65/004/000/0642/0645

AUTHOR: Ivanov, D. I.; Malkin, V. B.; Popkov, V. L.; Popova, Ye. O.; Chernyakov, I. N. 13

ORG: none B+1

TITLE: Automatic analysis of diurnal periodic changes in human EEG rhythms

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 642-645

TOPIC TAGS: electrophysiology, man, brain

ABSTRACT: Existing studies of circadian variations in EEG rhythms are of limited value for establishing norms against which to evaluate EEG effects of external environmental factors, since they are almost always collected from patients in pyschiatric hospitals or from healthy individuals during natural sleep. In addition, all existing studies have relied on visual analysis of EEG traces.

In the present study, the EEG's of healthy male subjects were taken 4 times daily (10 a. m., 5 p. m., 1 a. m., and 5 a. m.) for 10 to 30 days.

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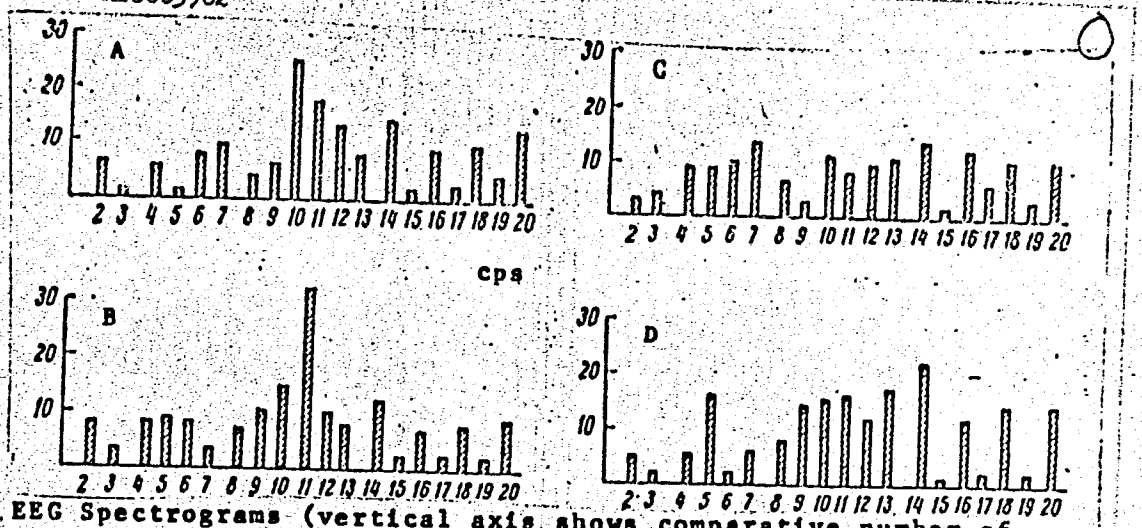
The general EEG picture over a 24-hr period is thus not determined by the alternation of rhythms. The alpha-rhythm is most nearly characteristic of the overall circadian EEG picture.

Most of the 5-p.m. EEG's show a 1 to 2 cps shift of the dominant alpha-rhythm toward higher frequencies by comparison with the morning EEG's (see figure). In the sleeping EEG spectograms, the characteristic daytime alpha-spike was absent and the number of low-frequency alpha waves was greater. Distribution of alpha-waves was comparatively even over the whole range (8 to 13 cps) of the alpha-wave pass filter. The total number of alpha-waves was less than in daytime EEG's.

Nighttime waking EEG's (5 a.m.) generally showed at alpha-rhythm picture close to that of 5-p.m. EEG's (at the end of the working day), and in some cases an alpha-rhythm distribution similar to that of sleeping EEG.

L 14259-66

ACC NR: AT6003902



EEG Spectrograms (vertical axis shows comparative number of waves of each frequency)
A - 10 a.m.; B - 5 p.m.; C - 1 a.m. (sleeping); D - 5 a.m. (waking). 2-3 cps = delta-rhythm, 4-7 cps = theta-rhythm, 8-13 cps = alpha-rhythm, 14-20 cps = beta-rhythm

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As stated above, delta- and theta-waves were never absent from the EEG's. The total number of delta- and theta-waves isolated by the pass filter, always several times less than the total number of alpha- and beta-waves, varied greatly: delta-waves from 1 to 15 in 10 sec, theta-waves from 15 to 56 in 10 sec. No clearcut dependence could be established between the number of delta- and theta-waves and the time of day.

The total EMF and the EMF's of the theta-, alpha-; and beta-rhythms individually were fairly consistent for a given time of day. The lowest EMF's were noted in the morning and the highest at night during sleep. The 5-p.m. EMF was generally higher than the 10-a.m. EMF. Evenings EMF's were higher both with eyes closed and with eyes open. The eyes-closed EMF was more pronounced (143%--300% of the eyes-open EMF).

Eyes-closed theta- and beta- EMF's changed very little or not at all. It is concluded that EMF changes in waking EEG's are due primarily to alpha-EMF changes. Increased EMF during sleep results not from greater numbers of delta- and theta-waves, but from increase in their amplitude. Orig. art. has: 1 figure. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 007 / OTH REF: 002

ACC NR: AT6036621 SOURCE CODE: UR/0000/66/000/000/0313/0314

AUTHOR: Popkov, V. L.; Chernyakov, I. N.

ORG: none

TITLE: Blood pressure dynamics in the right ventricle of the heart under conditions of increased intrapulmonary pressure /Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966/

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 313-314

TOPIC TAGS: oxygen excess pressure, hyperoxia, cardiovascular system, blood pressure

ABSTRACT:
Blood pressure in the right ventricle of dogs was measured with an electromanometer. Pressure oxygen breathing was used to create constant positive pressures of 20, 30, and 40 mm Hg in the upper respiratory tract. Elevated right ventricular blood pressure was observed during increased intrapulmonary pressure. During exhalation, systolic and diastolic pressures were 10 to 20 mm Hg higher than during inhalation, with and

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ACC NR: AT6036621

without excess pressure breathing (EP = 20, 30, and 40 mm Hg). The elevation of right ventricular blood pressure remained 1 to 10 mm Hg less than intratracheal pressure during excess pressure breathing. Mean systolic pressure during inhalation increased, from +36 mm Hg without excess pressure to: 64 mm Hg at EP = 20 mm Hg; 63 mm Hg at EP = 30 mm Hg; and 71 mm Hg at EP = 40 mm Hg. Mean diastolic pressure during exhalation increased, from +4 mm Hg without excess pressure to: 21 mm Hg at EP = 20 mm Hg; 28 mm Hg at EP = 30 mm Hg; and 32 mm Hg at EP = 40 mm Hg. The lag of right ventricular pressure behind increasing intrapulmonary pressure contradicts the theory that elevated right ventricular pressure is caused by mechanical pressure of the expanding lungs on the heart. The difference in right ventricular systolic and diastolic pressures increased by 2 to 11 mm Hg during excess intrapulmonary pressure, but this increased difference was not correlated with the amount of excess pressure. The experimental data obtained contradict the long-held theory of right ventricular hyperfunction during increased intrapulmonary pressure.
[W. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

KOCHETOV, A.K.; POPKOV, V.L.; CHERNYAKOV, I.N.

Apparatus for controlled respiration in intact animals. Fiziol. zhur. 50 no.12:1496-1499 D '64. (MIRA 18:9)

L 9277-66 EWT(1)/FS(v)-3 DD

ACC NR: AP5027475 SOURCE CODE: UR/0219/65/060/010/0020/0023

AUTHOR: Popkov, V. L. (Moscow); Chernyakov, I. N. (Moscow)

ORG: none

TITLE: Blood oxygen and CO_2 tension in dogs under excess pressure at high altitudes

SOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 60, no. 10, 1965, 20-23

TOPIC TAGS: hypercapnia, oxygen, dog, space chamber, space physiology, hypoxia, blood

ABSTRACT: Oxygen tension (pO_2) in the arterial and venous blood of dogs under conditions of excess intrapulmonary pressure and high altitudes was determined polarigraphically. The pCO_2 and pH of the blood were also recorded. The experiments showed that when dogs are "elevated" to an altitude of 4 km in a pressure chamber, pO_2 drops from 87 to 52.5 mm Hg in arterial blood and from 49 to 38 mm Hg in venous blood, producing a hypoxic condition. However, "elevation" to 10 km with substitution of 100% oxygen for air restores the pO_2 of arterial and venous blood almost to normal (90 and 48.4 mm Hg). "Elevation" to 20 km with excess pressure (oxygen mask) respiration giving an absolute intrapulmonary pressure of 150 mm Hg reduces arterial and venous pO_2 to levels observed with 4-km "elevation" breathing air. Increasing the intrapulmonary pressure to 200 mm Hg restores pO_2 to initial sea-level values (86.3 and 49.4 mm Hg). It was found that pCO_2 tends

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L 9277-66

ACC NR: AP5027475

to follow pO_2 rather closely. Hypocapnia tends to develop at a 4-km "elevation" breathing air and at a 20-km "elevation" with an intrapulmonary pressure of 150 mm Hg, but "elevation" to 10 km with a 100% oxygen atmosphere and to 20 km with an intrapulmonary pressure of 200 mm Hg did not produce hypocapnia. It is therefore concluded that hypocapnia is the result of a hypoxic condition, and is related neither to reduced atmosphere nor to intrapulmonary pressure change per se. Orig. art. has: 2 tables.

[BM]

SUB CODE: 06/ SUBM DATE: 04Jun64/ ORIG REF: 005/ OTH REF: 001/ ATD PRESS: 4158

EC

Card 2/2

CHERNYAKOV, I.N.; POPKOV, V.L. (Moskva)

Dynamics of oxygen in the blood and brain tissues of animals at high altitude during respiration under excessive pressure. Pat. fiziol. i eksp. terap. 9 no.2:18-23 Mr-Ap '65. (MIRA 18:5)

KOVALENKO, Ye.A. (Moskva); POPKOV, V.L. (Moskva); CHERNYAKOV, I.N. (Moskva)

Oxygenation of brain tissue during the inspiration of air and oxygen with an admixture of CO_2. Fiziol. zhur. 50 no.2:177-182 F '64. (MIRA 18:2)

POPKOV, V.

New equipment for the sewing shops. Rabotnitsa 37 no.7:14 Jl '59. (MIRA 13:1)
(Clothing industry)

POPKOV, V.M., inzh.

Measuring switch assemblies in surveying railroad stations.
Transp.stroi. 10 no.2:40-41 F '60. (MIRA 13:5)
(Railroads--Switches)

POPKOV, V.M., inzh.

Letters to the editor. Transp. stroi. 11 no.1:60-61 Ja '61.
(MIRA 14:1)

(Railroads--Rails)

POPKOV, V.N., inzh.

Effect of the amount of gypsum additives and the degree of grinding on the activity of lime-slag cements. Stroi. mat. 6 no.9:30-32 S '60. (MIRA 13:9)
(Cement) (Gypsum)

POPKOV, V. N.

Stakhonov Movement

Development of the Stakhanov movement at the Gor'kiy Automobile Plant. Avt. trakt. prom., No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, June 1952. UNCLASSIFIED

POPKOV, V. P., (Chief Veterinary Surgeon of the State Farm imeni Michurin, Tambov Oblast')

Determination of cow pregnancy by the electric luminescence method of cervicovaginal slime

Veterinariya vol. 38, no. 9, September 1961, pp. 59.

POPKOV, V.P.

Raising calves using nurse cows. Veterinariia 41 no.4:6-7 Ap '65.
(MIRA 18:6)

1. Glavnyy veterinarnyy vrach sovkhoza imeni Michurina, Tambovskoy oblasti.

POPKOV, V.P.

Determining pregnancy from the physiological characteristics of cows. Zhivotnovodstvo 23 no.8:83 Ag '61. (MIRA 16:2)

1. Starshiy veterinarnyy vrach sovkhoza imeni Michurina, Michurinskogo rayona, Tambovskoy oblasti.
(Cows) (Pregnancy--Signs and diagnosis)

POPKOV, V.P.

Electrodiagnosis of pregnancy in cows. Veterinariia 42 no.11:77-79 N '65. (MIRA 19:1)

1. Glavnyy veterinarnyy vrach sovkhoza imeni Michurina, Tambovskoy oblasti.

POPKOV, V.P.

Determining pregnancy in cows by electroluminescence of the cervicovaginal mucus. Veterinariia 38 no.9:59-60 S '61. (MIRA 16:8)

1. Starshiy veterinarnyy vrach sovkhoza imeni Michurina Tambovskoy oblasti.

1. POPKOV, V. P.

2. USSR (600)

4. Leucocytes

7. Changes in the Leucocyte formula of the blood, of secretion cells of the mocous membrane of the vaginal glands during the maturation of follicles in mares. Konevodstvo 22 no. 10 1952

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

POPKOV, V. S.

Woolen and Worsted Manufacture

Origin of strips on woolen fabrics. Tekst. prom. 12 no. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

MALYSHEVA, N.A., kand. tekhn. nauk; POPKOV, V.V., gornyy inzh.

Use of wheeled scrapers in stripping operations. Nauch. trudy Mosk. inst. radioelek. i gor. elektromekh. no.46:163-174 '62. (MIRA 17:1)

POPKOV, V.V.

Effect of prolonged insulin administration to animals in the content of lipids in various organs and in the blood flowing to and from the brain. Probl. endok. i gorm. 10 no.1:91-96 Ja-F '64.
(MIRA 17:10)

1. Kafedra biokhimii (zav. - prof. S.V. Zakharov) Yaroslavskogo meditsinskogo instituta.

Popkov, Yu.

PETROV, D.; POPKOV, Yu.

"The beautiful Desna." M. Gribachev, A. Krivitskii, S. Smirnov. Reviewed by D.Petrov, Yu. Popov. Zdorov'e 1 no.8:32 Ag '55 (MLRA 9:5)

(DESNA VALLEY--DESCRIPTION AND TRAVEL)
(GRIBACHEV, M) (KRIVITSKII, A.) (SMIRNOV, S.)

PETROV, Dm.; POPKOV, Yu.

With a camera in Turkmenistan ("An automobile is crossing the desert." R.Karmen, Reviewed by Dm.Petrov, IU. Popkov). Vokrug sveta no.7:60-61 Jl'55. (MLRA 8:10)
(Turkmenistan--Description and travel) (Karmen, R.)

POPKOV, Yu.

Penetrating into nature's secrets. IUn. nat. no.10:18-20 O '59.
(MIRA 13:2)
(China--Physical geography)

VLASENKO, N.A.; POPKOV, Yu.A.

Investigating the electroluminescence of a ZnS-Mn sublimate phosphor. Opt.i spektr. 8 no.1:81-88 Ja '60. (MIRA 13:7)
(Luminescence) (Zinc sulfide)

POPKOV, Yu.A.

AUTHOR: Popkov, Yu.A., Mining Engineer 127-12-17/28

TITLE: Sublevel System with 20-m Sublevel Inclined Height in the Levikhin Mine (Sistema podetazhnykh shtrekov s vysotoy podetazha 20 m na Levikhinskom rudnike)

PERIODICAL: Gornyy Zhurnal, 1957, No 12, pp 62-63 (USSR)

ABSTRACT: The Levikha mine exploits copper-ingrained ores by the system of sublevel galleries. The ore body consists of quartz-sericite slates. The dip angle of the lenses is 75 to 90°. The system employed is the sublevel system, with an inclined sublevel height of 18 to 20 m, which was introduced in 1954 in place of 8 m sublevel height used before. The author cites some figures showing advantages of the new system as compared with the previous one.
The article contains 1 figure.

ASSOCIATION: Institute Unipromed'.

AVAILABLE: Library of Congress

Card 1/1

VOLGAREVA, N.P., kand.med.nauk; PIGAROVA, V.K.; POPKOV, Yu.A. (Moskva)

Case of pheochromocytoma of the adrenal gland successfully operated on. Khirurgiia no.8:138-140 Ag '62. (MIRA 15:8)
(CHROMAFFIN SYSTEM--TUMORS)

S/185/63/008/001/013/024
D234/D308

AUTHORS: Yeremenko, V. V. and Popkov, Yu. A.

TITLE: Magnetooptical investigations of crystals in strong magnetic fields. I: Pulse methods

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 8, no. 1, 1963, 88-94

TEXT: The authors describe an experimental installation for photographing the absorption spectra of crystals during intervals 100 - 1000 times smaller than the duration of magnetic field pulses. The pulsed illumination is synchronized with maximum values of the field. The field is produced by discharge of a condenser battery through a small solenoid cooled by liquid helium, nitrogen or hydrogen. The possibility of use of the installation was checked on a CaF_2 + Ho crystal (investigated previously by V. A. Arkhangel'skaya and P. P. Feofilov in constant magnetic fields). The pulse duration can affect the relative intensities of Zeeman components. There are 7 figures.

Magnetooptical investigations of ... S/185/63/008/001/013/024
D234/D308

ASSOCIATION: Fizyko-tekhnichnyy instytut naz'kykh temperatur AN URSR (Physico-Technical Institute of Low Temperatures of the AS UkrSSR), Kharkiv

SUBMITTED: August 6, 1962

Card 2/2